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**PATENT COOPERATION TREATY (PCT)
TRAITÉ DE COOPÉRATION EN MATIÈRE DE BREVETS (PCT)**

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A ÉTÉ DÉPOSÉE, AINSI QUE DE TOUTES CORRECTIONS Y RELATIVES**

International Application No. }
Demande internationale n° } **PCT/IB03/00650**

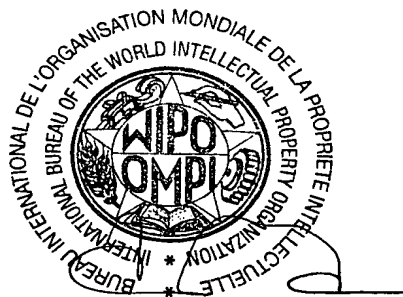
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de la Propriété Intellectuelle (OMPI)**



J.-L. Baron
Head, PCT Receiving Office Section
Chef de la section "office récepteur du PCT"

PCT REQUEST

5830-PCT

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| 0-1 | International Application No. | PCT / IB 0 3 / 0 0 6 5 0 |
| 0-2 | International Filing Date | 24 FEBRUARY 2003 (24.02.03) |
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| 0-4-1 | Prepared using | PCT-EASY Version 2.92 (updated 01.01.2003) |
| 0-5 | Petition The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty | |
| 0-6 | Receiving Office (specified by the applicant) | International Bureau of the World Intellectual Property Organization (RO/IB) |
| 0-7 | Applicant's or agent's file reference | 5830-PCT |
| I | Title of invention | PERFUMING INGREDIENT WITH A FLORAL-MUSKY CHARACTER |
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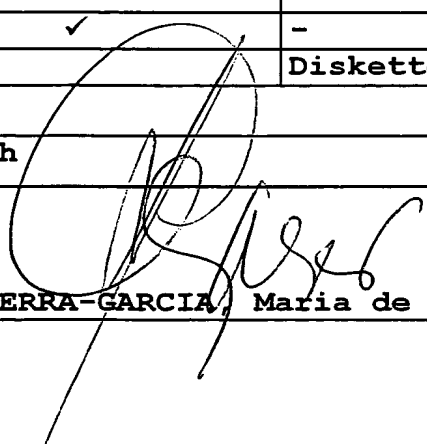
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| | | |
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| III-2-1 | This person is: | applicant and inventor |
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| V | Designation of States | |
| V-1 | Regional Patent (other kinds of protection or treatment, if any, are specified between parentheses after the designation(s) concerned) | AP: GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW and any other State which is a Contracting State of the Harare Protocol and of the PCT EA: AM AZ BY KG KZ MD RU TJ TM and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT EP: AT BE BG CH&LI CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PT SE SI SK TR and any other State which is a Contracting State of the European Patent Convention and of the PCT OA: BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG and any other State which is a member State of OAPI and a Contracting State of the PCT |
| V-2 | National Patent (other kinds of protection or treatment, if any, are specified between parentheses after the designation(s) concerned) | AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH&LI CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW |

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| V-5 | Precautionary Designation Statement In addition to the designations made under items V-1, V-2 and V-3, the applicant also makes under Rule 4.9(b) all designations which would be permitted under the PCT except any designation(s) of the State(s) indicated under item V-6 below. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. | | |
| V-6 | Exclusion(s) from precautionary designations | NONE | |
| VI | Priority claim | NONE | |
| VII-1 | International Searching Authority Chosen | European Patent Office (EPO) (ISA/EP) | |
| VIII | Declarations | Number of declarations | |
| VIII-1 | Declaration as to the identity of the inventor | - | |
| VIII-2 | Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent | - | |
| VIII-3 | Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application | - | |
| VIII-4 | Declaration of inventorship (only for the purposes of the designation of the United States of America) | - | |
| VIII-5 | Declaration as to non-prejudicial disclosures or exceptions to lack of novelty | - | |
| IX | Check list | number of sheets | electronic file(s) attached |
| IX-1 | Request (including declaration sheets) | 4 | - |
| IX-2 | Description | 12 | - |
| IX-3 | Claims | 2 | - |
| IX-4 | Abstract | 1 | EZABST00.TXT |
| IX-5 | Drawings | 0 | - |
| IX-7 | TOTAL | 19 | |
| | Accompanying items | paper document(s) attached | electronic file(s) attached |
| IX-8 | Fee calculation sheet | ✓ | - |
| IX-17 | PCT-EASY diskette | - | Diskette |
| IX-19 | Figure of the drawings which should accompany the abstract | | |
| IX-20 | Language of filing of the international application | English | |
| X-1 | Signature of applicant, agent or common representative |  | |
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| | | SALVATERRA-GARCIA, Maria de Lurdes | |

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| 10-2-2 | Not received | | |
| 10-3 | Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application | | |
| 10-4 | Date of timely receipt of the required corrections under PCT Article 11(2) | | |
| 10-5 | International Searching Authority | ISA/EP | |
| 10-6 | Transmittal of search copy delayed until search fee is paid | | |

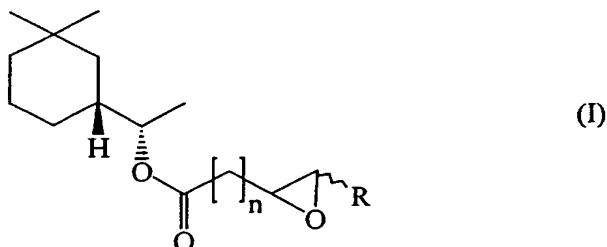
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| 11-1 | Date of receipt of the record copy by the International Bureau | |
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PERFUMING INGREDIENT WITH A FLORAL-MUSKY CHARACTER

Technical field

The present invention relates to the perfume industry. It concerns more particularly a compound of formula



wherein n represents an integer from 0 to 2, R represents a linear, branched or cyclic C_{1-3} hydrocarbon group, and the wavy line indicates that the substituents on the epoxide moiety may have a cis or trans configuration, or a mixture of compounds of formula (I). The compounds of formula (I), or a mixture thereof, may advantageously be used as perfuming ingredients.

The invention also relates to perfuming compositions or perfumed articles comprising as active ingredient at least a compound of formula (I), together with one or more perfuming or flavoring co-ingredients and possibly one or more solvents of common use in perfumery.

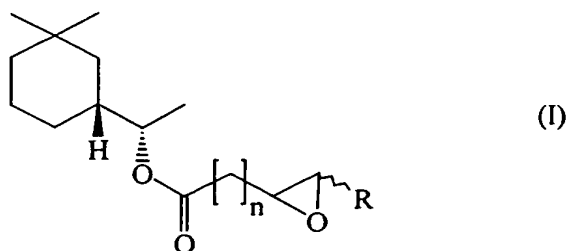
Prior art

To the best of our knowledge the compounds of the invention have never been reported in the prior art, nor suggested or anticipated.

Indeed, the closest analogues reported in the literature, in terms of chemical structure, are the compounds disclosed in WO 00/14051. However, said compounds not only have a different chemical structure, but possess also organoleptic properties which are very different from the ones of the compounds according to the present invention.

Description of the invention

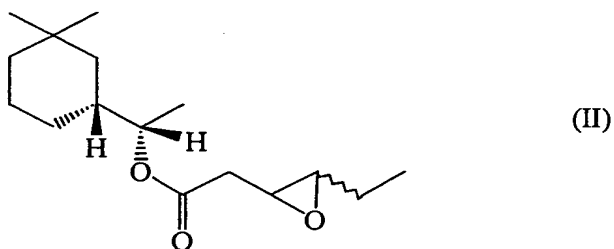
Surprisingly, we have now established that a compound of formula



wherein n represents an integer from 0 to 2, R represents a linear, branched or cyclic C_{1-3} hydrocarbon group, and the wavy line indicates that the substituents on the epoxide moiety may have a cis or trans configuration,

or a mixture of compounds of formula (I), possesses surprising odor properties, of the fruity type, which have been found to be particularly useful and appreciated for the preparation of perfumes, perfuming compositions and perfumed products.

According to a particular embodiment of the invention, a compound of formula



wherein the wavy line indicates that the substituents on the epoxide moiety may have a cis or trans configuration, or a mixture of said compounds, has proved to be remarkably useful as perfuming ingredient.

For instance, (1S,1'R)-1-(3',3'-dimethyl-1'-cyclohexyl)ethyl trans-3,4-epoxyhexanoate is much appreciated by perfumers for its fruity odor. Indeed, said odor has a pronounced fruity character associated with a musky and slightly animal connotation or aspect. The fruity character, which is of the strawberry, pear and prune type, has a remarkable persistence and is still clearly perceivable in the bottom notes. Such persistence is quite rare for this kind of ester-fruity note.

The overall fragrance of this compound is remarkably more fruity and powdery, and consequently much less musky, than the compounds described in the prior art. The

invention's compounds provide therefore a very interesting new tool to the perfumer's palette.

(1S,1'R)-1-(3',3'-dimethyl-1'-cyclohexyl)ethyl cis-3,4-epoxyhexanoate possesses an odor which has a slightly more pronounced fruity character, and an even less perceivable musky connotation, that the odor of its configuration isomer mentioned
5 above. The fruity character of the cis isomer is more in the direction of a candied fruit.

Moreover, as the compounds of formula (I), or their mixtures, are useful ingredients for the perfuming of various products, the present invention concerns also all different forms of the invention's compounds which can be advantageously employed in
10 perfumery. Such forms include a composition of matter consisting of at least a compound of formula (I) and at least a solvent commonly used in perfumery. As examples of said solvents, generally speaking, one can cite compounds such as dipropyleneglycol, diethyl phthalate, isopropyl myristate, benzyl benzoate, 2-(2-ethoxyethoxy)-1-ethanol or ethyl citrate, which are the most commonly used.

15 Additionally, the present invention concerns a perfuming composition comprising a compound of formula (I). Generally speaking, by "perfuming composition" we mean here a mixture or composition comprising at least two perfuming ingredients, in any of their forms, and possibly one or more solvents commonly used in perfuming compositions. It is understood that the perfuming ingredients are present in a perfuming
20 effective amount. Therefore, a perfuming composition according to the invention comprises at least an invention's compound, as perfuming ingredient, together with one or more perfuming co-ingredients and possibly one or more solvents commonly used in perfumery.

The nature and type of these perfuming co-ingredients do not warrant a more
25 detailed description here, which in any case would not be exhaustive, the skilled person being able to select them on the basis of its general knowledge and according to the nature of the product to be perfumed and the desired olfactory effect. In general terms, these perfuming co-ingredients belong to chemical classes as varied as alcohols, aldehydes, ketones, esters, ethers, acetates, nitriles, terpene hydrocarbons, nitrogenous or
30 sulphurous heterocyclic compounds and essential oils of natural or synthetic origin. Many of these ingredients are in any case listed in reference texts such as the book by S. Arctander, Perfume and Flavor Chemicals, 1969, Montclair, New Jersey, USA, or its

more recent versions, or in other works of a similar nature, as well as in the abundant patent literature in the field of perfumery.

Similarly, a detailed description of the nature and type of solvents commonly used in perfuming compositions cannot be exhaustive. A skilled person in the art is able to select them on the basis of the nature of the product to be perfumed. However, as non-limiting examples of such solvents, one can cite, in addition to the solvents mentioned above, also ethanol, water/ethanol mixtures, limonene or other terpenes, isoparaffins such as those known under the trademark Isopar® (origin: Exxon Chemical) or glycol ethers and glycol ether esters such as those known under the trademark Dowanol® (origin: Dow Chemical Company).

The perfuming compositions according to the invention may be in the form of a simple mixture of the various co-ingredients and solvents, or also in the form of a bi-phasic system such as an emulsion or microemulsion. Such systems are well known to a person skilled in the art.

As previously mentioned, an invention's compound, or a mixture of said compounds, as well as a perfuming composition comprising said compound, is a useful perfuming ingredient which can be advantageously used in all the fields of modern perfumery, such as fine perfumery or functional perfumery, to obtain perfumed articles. Consequently, perfumed articles comprising as perfuming ingredient at least an invention's compound, in any of its forms, or comprising a perfuming composition according to the invention, are also an object of the present invention.

Suitable perfumed articles comprise solid or liquid detergents and fabric softeners as well as all the other articles common in perfumery, namely perfumes, colognes or after-shave lotions, perfumed soaps, shower or bath salts, mousses, oils or gels, hygiene products or hair care products such as shampoos, body-care products, deodorants or antiperspirants, air fresheners and also cosmetic preparations. As detergents are intended applications such as detergent compositions or cleaning products for washing up or for cleaning various surfaces, e.g. intended for textile, dish or hard-surface treatment, whether they are intended for domestic or industrial use. Other perfumed articles are fabric refreshers, ironing waters, papers, wipes or bleaches.

Some of the above-mentioned articles may represent an aggressive medium for

the invention's compound, so that it may be necessary to protect the latter from premature degradation, for example by encapsulation.

For the sake of clarity, it has to be mentioned that, by "perfumed article" we mean here a finished consumer article, or a part of said consumer article, together with at least a perfuming ingredient. Therefore, a perfumed article according to the invention comprises at least a part of the whole formulation corresponding to the desired consumer article, e.g. a detergent, and at least an invention's compound possibly together with one or more perfuming co-ingredients and possibly together with one or more solvents commonly used in perfumery.

The nature and type of the constituents of the article do not warrant a more detailed description here, which in any case would not be exhaustive, the skilled person being able to select them on the basis of its general knowledge and according to the nature and the desired effect of said article.

The proportions in which a compound of formula (I) can be incorporated into the various aforementioned articles or compositions vary within a wide range of values. These values are dependent on the nature of the article or product to be perfumed and on the olfactory effect desired as well as on the nature of the co-ingredients in a given composition when the compounds according to the invention are mixed with perfuming co-ingredients, solvents or additives commonly used in the art.

For example, typical concentrations from 1% to 20%, and preferably from 5% to 15%, by weight of this compound, with respect to the perfuming composition in which they are incorporated, can be typically used. Lower concentrations than these can be used when the invention's compound is directly applied for perfuming some of the consumer products mentioned above.

Moreover, the invention concerns also the use as perfuming ingredients of a compound of formula (I), or of a mixture of said compounds. In other words it concerns a method to confer, enhance, improve or modify the odor properties of a perfuming composition or of a perfumed article, which method comprises adding to said composition or article an effective amount of at least a compound of formula (I). By "use of a compound of formula (I)" it has to be understood here the use of the compound in any of its forms, e.g. the ones mentioned above.

The invention will now be described in further detail by way of the following examples, wherein the temperatures are indicated in degrees centigrade (°C) ; the NMR spectral data were recorded with a 400 MHz machine in CDCl₃ ; the chemical displacements δ are indicated in ppm with respect to the TMS as standard and all the abbreviations have the usual meaning in the art.

Example 1

Synthesis of (1S,1'R)-1-(3',3'-dimethyl-1'-cyclohexyl)ethyl trans-3,4-epoxyhexanoate

10

a) A solution of (-)-(1R,1'S)-1-(3',3'-dimethyl-1'-cyclohexyl)-1-ethanol (13.88 g, 89 mmol), (*E*)-3-hexenoic acid (10.14 g, 89 mmol) and *para*-toluenesulfonic acid (0.14 g) in toluene (120 ml) was heated to reflux for 20 hours. The mixture was then cooled to room temperature washed with NaHCO₃ (sol.), water and concentrated. The remaining oil was distilled (*Vigreux* 20 cm) to give (1S,1'R)-1-(3',3'-dimethyl-1'-cyclohexyl)ethyl (*E*)-3-hexenoate (15.84 g, 70% yield, 99.9% GC).

15

B.P. 62.5°C/53 Pa

MS : 139(36), 123(36), 114(77), 109(15), 97(36), 83(100), 69(88), 55(30), 41(28).

¹³C-NMR : 171.9(s), 136.1(d), 121.0(d), 74.8(d), 41.3(t), 39.1(t), 38.5(t), 38.4(d),

20

33.5(q), 30.5(s), 28.4(t), 25.5(t), 24.6(q), 22.0(t), 17.2(q), 13.5(q).

¹H-NMR : 0.80-1.70(m, 9H without Me-signals), 0.87(s, 3H), 0.90(s, 3H), 1.00(t, J=7, 3H), 1.15(d, J=6, 3H), 2.05(quint, J=7, 2H), 3.00(d, J=6, 2H), 4.69(quint, J=6, 1H), 5.57(m, 2H).

25

b) Water containing 70% *meta*-chloroperbenzoic acid (mCPBA) (21.3 g; 86.4 mmol) in CH₂Cl₂ (70 ml) was added in 20 minutes to a stirred emulsion of (1S,1'R)-1-(3',3'-dimethyl-1'-cyclohexyl)ethyl (*E*)-3-hexenoate (17.5 g; 68.4 mmol), CH₂Cl₂ (180 ml) and NaHCO₃ (8.70 g; 103.7 mmol) in water (100 ml) kept at 15-20°C. The mixture was stirred at room temperature for 15 hours. The phases were separated and the aqueous phase was extracted with Et₂O. The organic layer was washed (10% aqueous Na₂SO₃, H₂O, then brine), dried (Na₂SO₄), evaporated and distilled over CaCO₃ (200 mg) to collect a fraction boiling at 165°C/0.05 mbars. This fraction was further

30

purified by a mild bulb-to-bulb distillation (oven temp. 70°C/0.01 mbars) of the volatile products in order to recover the residue, consisting essentially of pure title compound. The yield was 80%.

B.P. 110°C/40 Pa

5 MS : 155(9), 138(77), 130(36), 123(99), 109(64), 95(60), 83(93), 69(100), 55(49), 41(37).

¹³C-NMR : 170.1(s), 75.4(d), 59.6(d), 53.8(d), 41.3(t), 39.1(t), 38.3(d), 38.2(t), 33.5(q), 30.5(s), 28.4(t), 24.8(t), 24.6(q), 21.9(t), 17.1(q), 9.6(q).

10 ¹H-NMR : 0.80-1.70(m, 11H without Me-signals), 0.88(s, 3H), 0.91(s, 3H), 1.01(t, J=7, 3H), 1.18(d, J=6, 3H), 2.46(m, 1H), 2.63(m, 1H), 2.74(m, 1H), 3.05(m, 1H), 4.75(m, 1H).

Example 2

15 Synthesis of (1S,1'R)-1-(3',3'-dimethyl-1'-cyclohexyl)ethyl cis-3,4-epoxyhexanoate

a) Using the same experimental procedure than in Example 1.a), but with (*Z*)-3-hexenoic acid, instead of the (*E*) isomer, (1S,1'R)-1-(3',3'-dimethyl-1'-cyclohexyl)ethyl (*Z*)-3-hexenoate was obtained with a yield of 88%.

20 MS : 139(37), 123(21), 114(36), 97(30), 83(100), 69(95), 55(40), 41(50).

¹³C-NMR : 171.7(s), 134.9(d), 120.5(d), 74.9(d), 41.3(t), 39.1(t), 38.4(t), 33.5(d), 33.3(t), 30.5(s), 28.4(t), 24.6(q), 22.0(t), 20.7(t), 17.1(q), 14.0(q).

25 ¹H-NMR : 0.80-1.70(m, 9H without Me-signals), 0.87(s, 3H), 0.91(s, 3H), 0.98(t, J=7, 3H), 1.26(d, J=6, 3H), 2.07(quint, J=7, 2H), 3.06(d, J=6, 2H), 4.70(quint, J=6, 1H), 5.55(m, 2H).

b) Water containing 70% *meta*-chloroperbenzoic acid (mCPBA) (21.3 g; 86.4 mmol) in CH₂Cl₂ (70 ml) was added in 20 minutes to a stirred emulsion of (1S,1'R)-1-(3',3'-dimethyl-1'-cyclohexyl)ethyl (*Z*)-3-hexenoate (17.5 g; 68.4 mmol), CH₂Cl₂ (180 ml) and NaHCO₃ (8.70 g; 103.7 mmol) in water (100 ml) kept at 15-20°C. The mixture was stirred at room temperature for 15 hours. The phases were separated and the aqueous phase was extracted with Et₂O. The organic layer was washed (10% aqueous

Na₂SO₃, H₂O, then brine), dried (Na₂SO₄), evaporated and distilled over CaCO₃ (200 mg) at 100-120°C/0.01 mbars. The title compound was thus obtained with a yield of 98%.

MS : 155(4), 138(44), 130(36), 123(63), 113(31), 109(40), 95(43), 83(79), 71(61),
5 69(100), 55(58), 41(64).

¹³C-NMR : 170.3(s), 75.4(d), 57.7(d), 52.7(d), 41.3(t), 39.1(t), 38.3(d), 34.0(t),
33.5(q), 30.5(s), 28.3(t), 24.6(q), 21.9(t), 21.2(t), 17.1(q), 10.5(q).

¹H-NMR : 0.80-1.70(m, 11H without Me-signals), 0.87(s, 3H), 0.91(s, 3H), 1.05(t,
J=7, 3H), 1.18(d, J=6, 3H), 2.48(m, 1H), 2.63(m, 1H), 2.94(m, 1H), 3.33(m,
10 1H), 4.75(m, 1H).

Example 3

Preparation of a perfuming composition

15 A perfume base composition of the "musky" type was prepared by admixing the following ingredients :

| | <u>Ingredient</u> | <u>Parts by weight</u> |
|----|---|------------------------|
| 20 | Ambrette ¹⁾ synth. | 1 |
| | Exaltolide ^{® 2)} Total | 22 |
| | Helvetolide ^{® 3)} | 25 |
| | 0.1 %* Perhydro-4α,8αβ-dimethyl-4a-naphthalenol | <u>2</u> |
| | Total | 50 |

25 * in dipropyleneglycol

1) Compounded perfumery base; origin : Firmenich SA, Geneva, Switzerland

2) 15-Pentadecanolide; origin : Firmenich SA, Geneva, Switzerland

3) (+)-(1S,1'R)-2-[1-(3',3'-dimethyl-1'-cyclohexyl)ethoxy]-2-methylpropyl propanoate;
30 origin : Firmenich SA, Geneva, Switzerland

The addition of 50 parts by weight of (1S,1'R)-1-(3',3'-dimethyl-1'-cyclohexyl)ethyl trans-

3,4-epoxyhexanoate to the above-described perfume base provided to the latter a pronounced fruity-waxy character of the pear-prune type, which was quite persistent. When, instead of the invention compounds there was added to the perfume base mentioned above the same amount of the known musk Romandolide[®], i.e. (1S,1'R)-[1-
 5 (3',3'-dimethyl-1'-cyclohexyl)ethoxycarbonyl]methyl propanoate (WO 00/14501, origin : Firmenich SA), then the olfactive effect obtained was much more musky, of the Galaxolide[®] type.

Example 4

10

Preparation of a perfuming composition

A perfuming composition of the "floral-fruity-violet" type was prepared by admixing the following ingredients :

15

| | <u>Ingredient</u> | <u>Parts by weight</u> |
|----|--|------------------------|
| | Aldehyde C10 | 5 |
| | Aldehyde C12 | 10 |
| | 2-Methyl-undecenal | 20 |
| 20 | Methyl anthranilate | 5 |
| | 4-Phenyl-2-butanone | 20 |
| | Cetalox ^{® 1)} | 10 |
| | Citronellol | 50 |
| | 4-Cyclohexyl-2-methyl-2-butanol ²⁾ | 100 |
| 25 | Alpha Damascone | 5 |
| | Dihydromyrcenol | 100 |
| | Geraniol | 20 |
| | Iso E Super ^{® 3)} | 80 |
| | Lilial ^{® 4)} | 50 |
| 30 | 10%* Neobutenone ^{® 5)} | 10 |
| | Trans-1-(2,2,6-trimethyl-1-cyclohexyl)-3-hexanol ²⁾ | 10 |
| | Rose oxide | 5 |

10

| | | |
|---|---------------------------------|-----------|
| | Verdyl propionate ⁶⁾ | 60 |
| | 10%* Romascone ^{® 7)} | 10 |
| | Hexyl salicylate | 150 |
| | Verdox ^{® 8)} | 120 |
| 5 | Violettine MIP ²⁾ | <u>10</u> |
| | Total | 850 |

* in dipropyleneglycol

- 1) 8,12-Epoxy-13,14,15,16-tetranorlabdane; origin : Firmenich SA, Geneva,
10 Switzerland
- 2) origin : Firmenich SA, Geneva, Switzerland
- 3) 1-(Octahydro-2,3,8,8-tetramethyl-2-naphtalenyl)-1-ethanone; origin : International
Flavors & Fragrances, USA
- 4) 3-(4-Tert-butylphenyl)-2-methylpropanal; origin : Givaudan-Roure SA, Vernier,
15 Switzerland
- 5) 1-(5,5-Dimethyl-1-cyclohexen-1-yl)-4-penten-1-one; origin : Firmenich SA,
Geneva, Switzerland
- 6) origin : Givaudan-Roure SA, Vernier, Switzerland
- 7) Methyl 2,2-dimethyl-6-methylene-1-cyclohexanecarboxylate; origin : Firmenich
20 SA, Geneva, Switzerland
- 8) 2-Tert-butyl-1-cyclohexyl acetate; origin : International Flavors & Fragrances, USA

The addition of 150 parts by weight of (1S,1'R)-1-(3',3'-dimethyl-1'-cyclohexyl)ethyl
trans-3,4-epoxyhexanoate to the above-described composition imparted to the latter a
25 very distinct and persistent fruity-sweet character, which a musky-raspberry undertone.

Example 5

Preparation of a perfuming composition

30

A woman's perfume of the "fruity-musky" type was prepared by admixing the following ingredients :

| | <u>Ingredient</u> | <u>Parts by weight</u> |
|----|---|------------------------|
| | Geranyl acetate | 10 |
| | Styrallyl acetate | 5 |
| 5 | Hexylcinnamic aldehyde | 40 |
| | 10%* Star anise essential oil | 10 |
| | Benzophenone | 5 |
| | Bergamot essential oil | 170 |
| | 10%* Ethyl (E)-2,4-dimethyl-2-pentenoate | 25 |
| 10 | Raspberry ketone | 10 |
| | Citral | 10 |
| | 4-Cyclohexyl-2-methyl-2-butanol ¹⁾ | 30 |
| | Coumarine | 10 |
| | 2-Pentyl-1-cyclopentol ¹⁾ | 10 |
| 15 | 2-Methyl-4-(2,2,3-trimethyl-3-cyclopenten-1-yl)-4-penten-1-ol ¹⁾ | 50 |
| | Florol ^{® 2)} | 20 |
| | English Clove essential oil | 5 |
| | Hedione [®] HC ³⁾ | 50 |
| | 10%* 3-(1,3-Benzodioxol-5-yl)-2-methylpropanal | 30 |
| 20 | Heliotropine | 5 |
| | 10%* Hivernal ^{® 4)} | 10 |
| | 10%* Indol | 10 |
| | Iralia ^{® 5)} | 10 |
| | Lavandin Grosso | 80 |
| 25 | 10%* Spearmint essential oil | 10 |
| | 1,1,3,3,5-Pentamethyl-4,6-dinitro indan | 200 |
| | Patchouli | 10 |
| | Orange essential oil | 60 |
| | 3-(5,5,6-Trimethyl-bicyclo[2.2.1]hept-2-yl)-1-cyclohexanol | 300 |
| 30 | Sclareolate ^{® 6)} | 80 |
| | Wardia ^{® 7)} | 10 |
| | 10%* Red thyme essential oil | 15 |

| | |
|-----------|-----------|
| Basil oil | <u>10</u> |
| Total | 1300 |

* in dipropyleneglycol

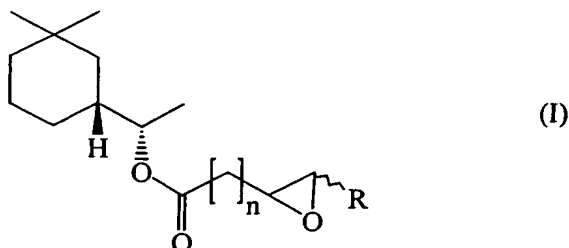
- 5 1. origin : Firmenich SA, Geneva, Switzerland
2. Tetrahydro-2-isobutyl-4-methyl-4(2H)-pyranol; origin : Firmenich SA, Geneva, Switzerland
3. Methyl dihydrojasmonate ; origin : Firmenich SA, Geneva, Switzerland
4. Mixture of 3-(3,3-dimethyl-5-indanyl)propanal and 3-(1,1-dimethyl-5-
10 indanyl)propanal; origin : Firmenich SA, Geneva, Switzerland
5. Mixture of methylionone isomeres; origin : Firmenich SA, Geneva, Switzerland
6. Propyl (S)-2-(1,1-dimethylpropoxy)propanoate; origin : Firmenich SA, Geneva, Switzerland
7. Compounded perfumery base; origin : Firmenich SA, Geneva, Switzerland

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The addition of 220 parts by weight of (1S,1'R)-1-(3',3'-dimethyl-1'-cyclohexyl)ethyl trans-3,4-epoxyhexanoate to the above-described woman's perfume imparted to the latter a fruity-blackberry connotation, together with a powdery-musk note. It would be impossible to obtain such olfactive effect by the addition of Romandolide®.

Claims

1. A compound of formula



wherein n represents an integer from 0 to 2, R represents a linear, branched or cyclic C₁₋₃ hydrocarbon group, and the wavy line indicates that the substituents on the epoxide moiety may have a cis or trans configuration.

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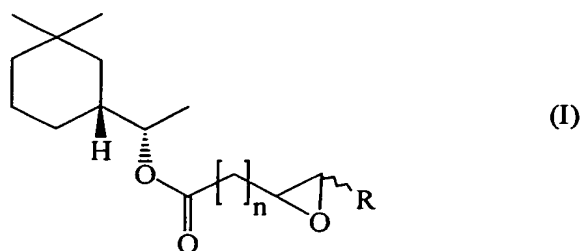
2. As a compound according to claim 1, (1S,1'R)-1-(3',3'-dimethyl-1'-cyclohexyl)ethyl trans-3,4-epoxyhexanoate or (1S,1'R)-1-(3',3'-dimethyl-1'-cyclohexyl)ethyl cis-3,4-epoxyhexanoate.
3. A compound according to claim 1, in the form of a composition of matter consisting of at least a compound of formula (I), as defined in claim 1, and at least a solvent commonly used in perfumery.
4. A perfuming composition comprising as perfuming ingredient at least a compound as defined in claim 1, together with one or more perfuming co-ingredients and possibly one or more solvents commonly used in perfumery.
5. A perfumed article comprising as perfuming ingredient at least a compound as defined in claim 1 or a perfuming composition as defined in claim 4.
6. A perfumed article according to claim 5, in the form of a solid or liquid detergent, a fabric softener, a perfume, a cologne or after-shave lotion, a perfumed soap, a shower or bath salt, mousse, oil or gel, a hygiene product or hair care product, a

shampoo, a body-care product, a deodorant or antiperspirant, an air freshener, a cosmetic preparation, a fabric refresher, an ironing water, papers, wipes or bleaches.

- 5 7. Use as a perfuming ingredient of a compound as defined in claim 1, or of a mixture of said compounds.

Abstract

The present invention relates to the perfume and flavor industry. It concerns
5 more particularly a compound of formula



wherein n represents an integer from 0 to 2, R represents a linear, branched or cyclic C₁₋₃
10 hydrocarbon group, and the wavy line indicates that the substituents on the epoxide moiety may have a cis or trans configuration, or a mixture of compounds of formula (I).
The compounds of formula (I), or a mixture thereof, are useful as perfuming ingredients.